

Colostomy

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HISTORICAL.

IN pre-Listerian days surgeons were afraid, and rightly so, to open the peritoneal cavity. The antiseptic methods of the post-Listerian era, and the aseptic technique of the present time, were then unheard of, yet there was no lacking in the anatomical knowledge of the great men of that period, who must be hailed as the founders of the surgical profession. Their vivid anatomical descriptions will stand as monuments to their memory and an inspiration to those who are attempting to follow in their footsteps. It is to Petit that we are indebted for the term colostomy. He suggested in 1886 that its application be limited to permanent artificial anus, and that the older term colotomy be reserved for the temporary variety. In 1710 Littré in "The Memoirs of the Academy of Sciences of Paris" suggested the operation of colostomy for imperforate anus, but there is no record of his having performed it. He advised using the sigmoid flexure via the peritoneal route. In 1776 Pilloré Rouén made a cæcostomy opening for intestinal obstruction in an adult. Then in the next twenty years Duboisé, Dinet, and Désault all performed the operation for imperforate anus. In 1787 Firé did a transverse colostomy during an operation in which he intended opening the small bowel for obstruction. In 1796 Callisen suggested that the descending colon should be reached extraperitoneally by a lumbar incision; this was soon abandoned, however, on account of the difficulty and the mutilation of tissue which was required in order to find the bowel. In addition, the infection that followed this operation was just as fatal as the peritonitis which resulted from the peritoneal route. So we find for the next thirty years the inguinal incision was favoured, but the lumbar operation was again revived by Amussat, who, in a series of articles (1839-41), showed that it could be done without any considerable danger, and in support of this view he records six cases, five of which were successful. In 1849 colostomy was first done for vesico-rectal fistula secondary to ulcerative colitis. Allingham, Reeves, and Cripps were eventually responsible for the abandonment of lumbar colostomy. They showed that it was impossible to do the operation without injuring the peritoneum, and also that the position was a very unsuitable one in which to have a bowel opening. In 1895 F. T. Paul, surgeon to the Royal Infirmary, Liverpool, in an article in the "British Medical Journal" of that year, describes the operation which still bears his name. He was the first to suture the two limbs of the bowel together in cases in which the colostomy was intended as a temporary measure.

Colostomy has never been a popular operation, and a great deal of abhorrence has been attached to it, partly because the patient is able to view the artificial anus, and partly on account of the prejudice which has been handed down from the early days of the operation, when not only the layman but also the physician objected

strongly on religious and sentimental grounds. Even surgical textbooks such as Gross's "System of Surgery" and Smith's "Principles and Practices of Surgery" have aided in this prejudice against the operation. Gross apologised for giving a description of the operation, stating that it was founded on "misdirected sympathy" and that it "ought to be discarded among the obsolete devices of surgery." The expression of such a view by one who was responsible for the teaching of students was most unfortunate. Since the days of Allingham and Paul much has been achieved regarding the technique of the operation, but Allingham's actual incision still stands, and Paul's operation is to-day regarded as a classic. Various surgeons have added to the general knowledge, such as Maydl, Witzel, Paul, and in more recent times, Miles, Lockhart-Mummery, and Gabriel, to mention only a few. It would be a serious omission if I failed to mention St. Mark's Hospital, which has done so much for the advancement of rectal surgery. I propose, therefore, merely to record the technique and after-care of colostomy as it was carried out during the time I was resident at St. Mark's.

INDICATIONS FOR COLOSTOMY.

Carcinoma of the rectum.—All cases of carcinoma of the rectum which are operable will require colostomy, except possibly in some very early cases, where one might perform a conservative resection, either of the local or abdomino-anal type, as described by Lloyd-Davies. The question of whether or not it is worth while doing a colostomy in an inoperable carcinoma of the rectum is a much more difficult problem. One does not want to prolong an existence which has long since become intolerable, unless one can be sure that there is going to be an improvement in both the general and local conditions. Many points will have to be considered, for example, (1) the mental reaction of the patient to the operation, (2) the amount of pain, and whether it is due to involvement of the anal canal, or to extra rectal spread, (3) the severity of tenesmus, diarrhoea, and hæmorrhage, and (4) the possibility of the development of an acute obstruction. The improvement will depend on whether the tumour is of the ulcerative, schirrous, or colloid type; whether it is grade 1, 2, 3, or 4; and whether it is an upper, middle, or lower third growth. Generally speaking, the operation is worth while if there are no liver or peritoneal secondaries. The greatest improvement will be experienced by those cases with subacute obstruction, severe tenesmus, bleeding, diarrhoea, and incontinence, and in cases complaining of pain due to involvement of the anal canal. When pain is due to extra rectal spread there will be no improvement, and in cases of inoperable grade 4 carcinoma, the outlook of life is too short to warrant a colostomy. After the operation in suitable cases, there is an improvement in the general and often in the local condition, due to the now less frequent bowel evacuations. In addition, the appetite is regained, sleep improves, and the tenesmus becomes much less troublesome. This improvement will be maintained right up to a short time before death. The expectation of life is also definitely increased, as shown by Gabriel and Lloyd-Davies in a paper which surveyed the results of five hundred cases of palliative colostomy for carcinoma of the rectum. In the series they found

just over fifty per cent. of the cases, which were without liver and peritoneal secondaries at operation, died within the year, thirty per cent. survived for between one and two years, ten per cent. reached the two to three year period, and six per cent. survived for three years or more, so that providing the operation is done while the patient is still capable of improvement, it is definitely beneficial both as regards comfort and duration of life.

Other indications are much less frequent, for example, recto-vesical fistula which may be due to a carcinoma or diverticulitis, radium burns and their sequelæ, simple stricture of the rectum. Also, patients suffering from large recto-vaginal fistulæ or incontinence will be much more comfortable with colostomy. Lastly, the classical indication is in the newborn, as a temporary or permanent measure, for imperforate anus.

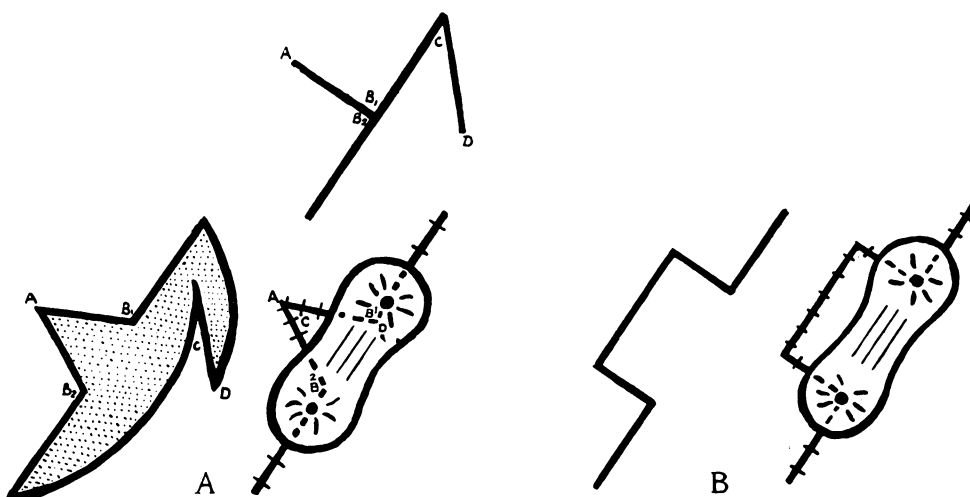


Fig. 1.—Showing variations in the skin incision for the formation of a skin bridge.

TECHNIQUE OF THE OPERATION.

Anæsthetic.—Spinal anæsthesia gives very good relaxation, and permits of a full exploratory laparotomy being done. There are some cases, however, in which its use is contraindicated, for example, in patients with low blood-pressure there is increased risk of thrombotic complications from further lowering of the blood-pressure. In normal patients this fall can be effectively counteracted by the use of ephedrine. For a successful abdominal operation under spinal anæsthesia it is advisable either to employ full pre-operative medication, such as, by the use of omnopon gr. 2/3, scopolamine gr. 1/150, hypodermically, and nembutal gr. 1 to 3 by mouth about an hour before operation, or to combine the spinal anæsthesia with very light gas and oxygen or Evipan anæsthesia.

Incision.—The transrectus incision was first popularised on the mistaken idea that with the muscle-fibres of the rectus abdominus completely surrounding the

bowel, a certain amount of control would be acquired. There is no doubt that it is the most easy colostomy for which to obtain an accurately fitting belt, but on the other hand a transrectus opening is very prone to hernia formation. The most popular incision is an inguinal one, in reality a left-sided muscle-splitting incision. It is more difficult to fit a belt in this situation, but there is less likelihood of the subsequent development of a hernia. Variations in the skin incision have been advocated by different surgeons with a view to the formation of a skin bridge for the colostomy, two of which are illustrated.

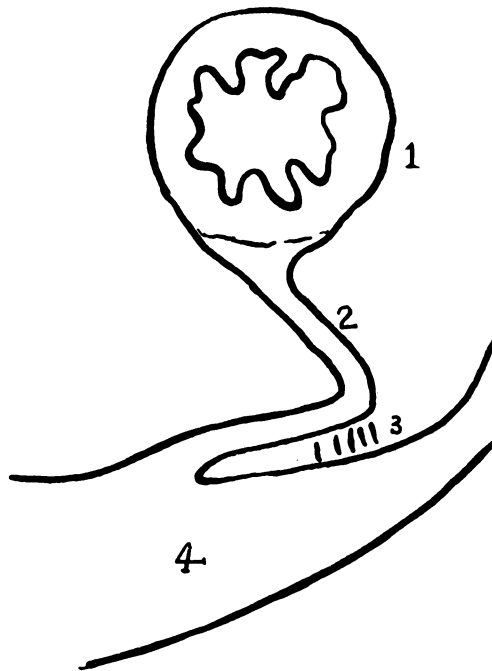


Fig. 2.—To show the adhesions between the mesosigmoid and the posterior abdominal wall, which tend to shorten the mesentery. (1) Sigmoid, (2) mesosigmoid, (3) adhesions, (4) posterior abdominal wall.

The various other so-called valvular colostomies may be mentioned merely to condemn them, as they are such in name only. Thus the oblique variety may retain its valvular action for a few weeks, but with the constant usage the track eventually straightens out. The size of the skin incision does not matter provided it gives sufficient exposure, but the opening through the muscles and peritoneum should be as small as is practicable. The incision should be muscle-splitting, injury to nerves and forcible retraction of the muscles should be avoided as far as is possible. If exploration of the abdomen is indicated, as in cases of carcinoma of the rectum, then a second incision should be made. A complete exploratory laparotomy cannot be done through a left iliac incision, and a paramedian incision does not add to the dangers

of the operation. It is a definite drawback to have to make a colostomy through a large incision, because of the tendency to subsequent prolapse and herniation, and also because there is necessarily an increased risk of infection in a large wound. In the case of a blind colostomy, a finger is passed through the incision and, keeping close to the left lateral wall of the abdomen, it is then passed backwards until it comes into contact with the bowel: this will be the sigmoid colon. The latter is then brought out through the abdominal incision, making certain that the bowel is not twisted by tracing both limbs of the loop backwards. If the mesentery of the colon is short it may be lengthened by dividing peritoneal adhesions on the outer side of the bowel, as there is very often a fold in the peritoneum in this position,

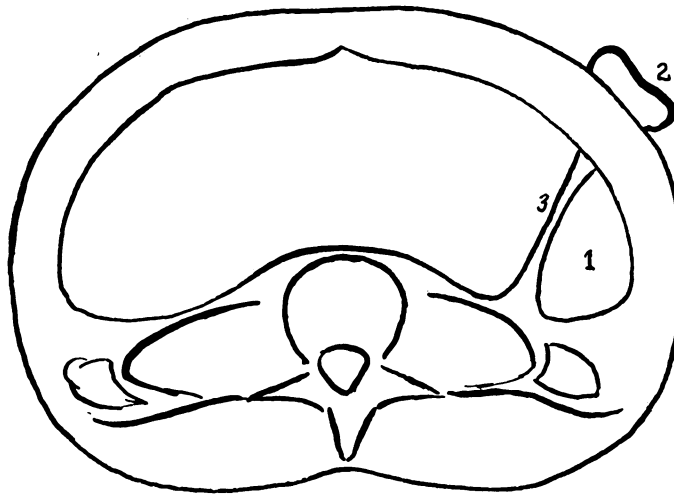


Fig. 3.—To show the posterior space described by Gabriel, and through which small intestines may become strangulated. The space may be easily closed by a purse-string suture.

(1) Lateral space, (2) colostomy, (3) mesosigmoid.

as shown in diagram 2. If the mesentery is still too short, one may remove wedges of fat from the subcutaneous part of the abdominal wall. The bowel is then pulled taut on the upper limb; this allows easy passage of a catheter subsequently, and also tends to prevent prolapse or herniation. It is also an advantage to have all the free bowel below, especially if an excision of the rectum is to be performed later. The space lateral to the meso-sigmoid is then closed by putting a catgut suture through the free border of the ridge of peritoneum, which shows when the bowel has been pulled towards the right side. Herniation of small intestine through this space, with acute intestinal obstruction, has been shown to occur by Gabriel in a small percentage of cases in which it has not been closed. A glass rod is then passed through an avascular region of the mesentery. In cases of temporary colostomy, one should suture the two limbs of the bowel together as described by

Paul. In cases of permanent colostomy it is important that one should form some kind of bridge; this may consist either of peritoneum, fascia, or skin, a pedicle of which is carried through the opening in the mesentery for the glass rod. This bridge prevents sinking in of the colostomy, and the passage of fæces into the lower bowel. The peritoneal incision is now sutured, the last stitch on each side of the colostomy being tied over an appendix epiploica. The external oblique is sutured, the internal oblique being caught up in those sutures which lie nearest to the bowel. Finally, skin sutures are inserted, those nearest the bowel catching up the external oblique. No sutures should be inserted into the bowel wall. A small ellipse of skin may, with advantage, be excised on both sides of the colostomy. Dressings are now applied around the base of the colostomy, passing underneath the glass rod, and the colostomy is then opened freely with the cautery by a crucial incision, which passes transversely and longitudinally along the whole length of exposed bowel. An finger is passed into the colostomy, it should admit one finger easily but not two. At this stage a few ounces of olive oil may be run into the upper limb of the bowel.

In cases where a bridge of skin is employed it is not essential to put a glass rod in the mesentery, though it is safer to do so until the wound has healed. The bowel intervening between the two openings may be completely divided when the bridge is strong, either with the cautery or by tying a silk ligature tightly round it. This leaves two colostomy openings separated by a piece of skin, and there is now no possible chance of fæces getting into the lower limb. The lower of the two openings will atrophy to a certain extent after a time, but will not close completely.

AFTER-CARE OF COLOSTOMY.

The opening of the colostomy at the time of the operation prevents the pain from gaseous distension, which may be so distressing to the patient, and which may be an etiological factor in the production of paralytic ileus. After operation the dressings around the colostomy are left undisturbed until the bowel acts, thus giving the wound a good chance to heal by first intention. The sutures in the wound should be removed early, i.e., the sixth to seventh day. The glass rod is kept in position for two weeks or until the patient is getting up, when it can be replaced by a piece of rubbertubing, the ends of which have been bent over and tied with silk. This is more mobile and is less liable to injure the tissues while the patient is going about. It should be kept in position for about a further ten days.

There are two methods used in the after-care of colostomy, each having points in its favour, so that it probably is best to decide which method is to be used in each individual case.

(1) The wash-out method.—This is probably best suited for heavy manual labourers, as they can be sure that after the wash-out, either in the morning or the evening, the bowel will not act in the next twenty-four hours. It is, however, contra-indicated if there is any associated diverticulosis, as there is a definite risk of perforation of a diverticulum by the catheter. On the second night after operation

the patient is given thirty minims of cascara evacuant and one ounce liquid paraffin, and on the third morning a wash-out is given. The wash-out is given through a catheter and funnel, and is run in slowly, one to two pints of water, soap and water, or saline being used. The patient is easily taught the procedure himself, and it should not take much more than half an hour. After the wash-out has been returned, the patient is absolutely safe, in the absence of diatetic indiscretions, for the next twenty-four hours. In some cases using this method, the irritation of the wash-out may give rise to a chronic catarrh of the mucosa of the colon, with a resultant excess production of mucus.

(2) The conservative method in many cases will be quite satisfactory, once the patient has become accustomed to his new life. At first the bowel will probably act at all times of the day, but this will settle down, and subsequently there will be an action after meals, and eventually only once or twice at the most per day, provided care is exercised with regard to diet.

It is most important to get a well-fitting belt to support the abdominal wall, and to give the patient confidence. A layer of soft wool is applied over the colostomy, and then a slightly concave celluloid disc, about four to five inches in diameter, which gives added support in the weakened region of the colostomy. The various cup devices should never be used, as they aid in the production of prolapse of the bowel and hernia formation. A light elastic belt should also be procured for night use.

DIET.

It is important to maintain during the first week a fluid regime, and then gradually increase to a basal diet, such as that described by Bergen and Victor, by the third week.

Breakfast:

Orange-juice, quarter glass.
Bacon and egg.
Toast and butter as desired.
Coffee.

Dinner:

Meat and potato.
Shredded lettuce.
Bland dessert—no fruit.
Bread, toast or crackers if desired.
Boiled milk, one glass, or tea.

Supper:

Cheese.
Meat, one serving, or two eggs.
Potato or substitute.
Fruit—ripe banana or other bland fruit.

Bread or crackers.
Jelly if desired.
Boiled milk, one glass.

Brewers' yeast may be taken with all meals if desired.

An intelligent patient will find out for himself which articles he can safely add to his diet, and which things he will have to avoid, by the trial and error system. He will require warning in the use of laxatives and spirits, condiments, etc. One patient at St. Mark's was so keen on his daily glass of beer that he had the perseverance to try out forty different brands before he found one which suited him. One of the most important points in the after-care is to try and get the patient back to his normal work—for it is in persons with a daily routine to follow out that a colostomy acts most satisfactorily. The colostomy is not a handicap, even in the most arduous of work.

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